

What is claimed is:

- 1 1. A method of processing a plurality of Z vectors, each Z vector including Z elements,
2 each element including K bits, where Z is a positive integer greater than 1 and K is a positive
3 integer greater than zero, the plurality of Z vectors corresponding to a binary codeword, portions
4 of said binary codeword having a direct mapping relationship to a plurality of transmission units,
5 said plurality of Z vectors being stored in a set of D memory arrays, where D is an integer
6 greater than zero, each memory array including Z rows of memory locations, each memory
7 location of a row corresponding to a different array column, each array column corresponding to
8 a different one of said plurality of Z vectors, each Z vector identifying one column in each of
9 said D memory arrays, the method comprising:
10 generating a series of sets of control information, each set of control information
11 including:
12 i) a transmission unit identifier;
13 ii) a Z vector identifier;
14 iii) a row identifier; and
15 for at least one generated set of control information:
16 reading P times K divided by D bits, where P is a positive integer greater than
17 zero, from each column identified by the Z vector identified by the Z vector identifier included
18 in said at least one generated set of control information.
- 1 2. The method of claim 1,
2 wherein said method of processing is performed by a transmission device prior to
3 transmission of said transmission units;
4 wherein D is 1; and
5 wherein K is 1.
- 1 3. The method of claim 2, further comprising:
2 for said at least one generated set of control information:
3 generating from said P bits read from memory, a portion of the transmission unit
4 identified by the transmission unit identifier included in said at least one generated set of
5 control information.

- 1 4. The method of claim 3,
2 wherein said plurality of Z vectors includes n of said plurality of Z vectors, where n is a
3 positive integer greater than 1; and
4 wherein generating a series of sets of control information further includes:
5 incrementing a Z vector identifier value by n divided by M, where M is the
6 number of portions of the transmission unit having a direct mapping relationship to a
7 portion of the binary codeword said portion of the binary codeword including M times P
8 bits.
- 1 5. The method of claim 4,
2 wherein each portion of a transmission unit is a symbol; and
3 wherein the transmission unit is a dwell.
- 1 6. The method of claim 3, wherein generating a series of sets of control information further
2 includes:
3 incrementing the Z vector identifier value M times;
4 after incrementing the Z vector value M times:
5 i) resetting the Z vector identifier value to the Z vector identifier value existing at
6 the start of said incrementing; and
7 ii) incrementing a row identifier value by P.
- 1 7. The method of claim 6, wherein generating a series of sets of control information further
2 includes:
3 after incrementing the row identifier value Z divided by P times, where Z divided by P
4 times is an integer,
5 setting the row identifier value to zero; and
6 incrementing the Z vector identifier value by a preselected positive integer value.
- 1 8. The method of claim 7, wherein said preselected positive integer value is one.
- 1 9. The method of claim 2, wherein said binary codeword is a low density parity check
2 codeword.

- 1 10. The method of claim 1,
2 wherein said method of processing is used to process received transmission units; and
3 wherein K is an integer greater than zero and is a number of bits used to represent a soft
4 value corresponding to one bit of said binary codeword.

- 1 11. The method of claim 10, where D is equal to K or 1.

- 1 12. The method of claim 11, further comprising:
2 for said at least one generated set of control information:
3 supplying the P bits read from memory to a demodulator.

- 1 13. The method of claim 10, further comprising:
2 for said at least one generated set of control information:
3 generating from said P bits read from memory, a portion of the transmission unit
4 identified by the transmission unit identifier included in said each generated set of
5 control information.

- 1 14. The method of claim 13,
2 wherein said plurality of Z vectors includes n of said Z vectors, where n is a positive
3 integer greater than 1; and
4 wherein generating a series of sets of control information further includes:
5 incrementing a Z vector identifier value n divided by M, where M is the number
6 of portions of the transmission unit having a mapping relationship to a portion of the
7 binary codeword said portion of the binary codeword including M times P bits.

- 1 15. The method of claim 13, wherein generating a series of sets of control information
2 further includes:
3 incrementing a row identifier value by P incrementing the Z vector identifier value
4 M times;
5 after incrementing the Z vector value M times:
6 i) resetting the Z vector identifier value to the Z vector identifier value existing at
7 the start of said incrementing; and
8 ii) incrementing a row identifier value by P.

1 16. The method of claim 15, wherein generating a series of sets of control information
2 further includes:
3 after incrementing the row identifier value Z divided by P times, where Z divided by P
4 times is an integer,
5 setting the row identifier value to zero; and
6 incrementing the Z vector identifier value by a preselected positive integer value.

1 17. The method of claim 16, wherein said preselected positive integer value is one.

1 18. The method of claim 10, wherein said binary codeword is a low density parity check
2 codeword.

1 19. An apparatus for processing a plurality of Z vectors, each Z vector including Z elements,
2 each element including K bits, where Z is a positive integer greater than 1 and K is a positive
3 integer greater than zero, the plurality of Z vectors corresponding to a binary codeword, portions
4 of said binary codeword having a direct mapping relationship to a plurality of transmission units,
5 said apparatus comprising:
6 memory including a set of D memory arrays for storing said plurality of Z vectors, where
7 D is an integer greater than zero, each memory array including Z rows of memory locations,
8 each memory location of a row corresponding to a different array column, each array column
9 corresponding to a different one of said plurality of Z vectors, each Z vector identifying one
10 column in each of said D memory arrays;
11 memory access control module for generating a series of sets of control information,
12 each set of control information including:
13 i) a transmission unit identifier;
14 ii) a Z vector identifier;
15 iii) a row identifier; and
16 means for reading P times K divided by D bits, from said memory, where P is a positive
17 integer greater than zero, from each column identified by the Z vector identified by the Z vector
18 identifier included at least one generated set of control information.

1 20. The method of claim 1,
2 wherein D is 1; and
3 wherein K is 1.

1 21. The method of claim 19, wherein said memory access control modules includes:
2 a first counter for generating said Z vector identifier; and
3 a second counter for generating said row identifier.

1 22. A machine readable medium comprising machine executable instructions for controlling
2 a computer device to process a plurality of Z vectors, each Z vector including Z elements, each
3 element including K bits, where Z is a positive integer greater than 1 and K is a positive integer
4 greater than zero, the plurality of Z vectors corresponding to a binary codeword, portions of said
5 binary codeword having a direct mapping relationship to a plurality of transmission units, said
6 machine executable instructions including instructions used to control the computer device to:
7 generate a series of sets of control information, each set of control information including:
8 i) a transmission unit identifier;
9 ii) a Z vector identifier; and
10 iii) a row identifier; and
11 for at least one generated set of control information:
12 read P times K divided by D bits, where P is a positive integer greater than zero,
13 from each column identified by the Z vector identified by the Z vector identifier included
14 in said at least one generated set of control information.